

REMARKS

Claims 1, 3-6 and 8-17 are pending in the application, are rejected, and are at issue.

Attached hereto are drawing sheets with corrections to Figs. 1b, 2 and 9, the entry of which is requested. Particularly, Fig. 1b is amended to include numeral 7 depicting the perforations to increase the in-growth of bone tissue. Support is found at page 7, lines 7-12 of the published PCT application. In Fig. 2, reference numeral 16 has been changed to reference numeral 6. Reference numeral 6 refers to the prosthetic device described on pages 6-8 of the specification and in particular, page 8, lines 2-7. This also brings Fig. 2 into conformity with Figs. 1a-1c. In Fig. 9, reference numeral 40' has been replaced by reference numeral 40 which refers to a groove applied in the circumferential surface of the intra-osseous part 12. Approval of the corrected drawings is requested.

The objections to the claims under §112 are addressed by amendments herein to claims 1, 10 and 14. Withdrawal is requested.

Applicant traverses the rejection of claims 1, 3 and 8-9 as anticipated by Niznick et al. U.S. Patent No. 5,427,527 (Niznick).

Independent claim 1 specifies an intra-osseous implant for placement in bone of a human or animal body comprising at least one intra-osseous part intended for placement in bone tissue having an apical side and a cervical side and composed of a body friendly material. The part is provided on a circumferential surface with a screw thread running in the direction of and ending at the apical end. A support part is present at the cervical side of the at least one

intra-osseous part intended for supporting a prosthetic element, characterized in that the intra-osseous part is provided with multiple grooves extending in longitudinal direction and over the entire length of the intra-osseous part, interrupting the screw thread into multiple interrupted screw thread parts. The multiple interrupted screw thread parts serve as retention elements allowing the placement of the implant in longitudinal direction into the bone tissue but preventing the removal of the implant in opposite longitudinal direction out of the bone. The retention elements are provided with a profile exhibiting a shallow slope towards the apical side in a steep slope on the cervical side.

In order to define the interrupted screw thread and in particular, the resulting retention elements more clearly, claim 1 is amended wherein the profile features of the retention elements are further defined.

Niznick discloses an intra-osseous implant for placement in a bone having a part intended for placement in the bone tissue which is provided with a screw thread in its circumferential surface running in the direction of and ending at the apical end of the implant part. However, Niznick does not disclose or suggest the characterizing features of the invention defined by claim 1 and noted above.

The Examiner asserts that Niznick discloses an implant design wherein the intra-osseous implant part which is intended for placement in a bone tissue is provided with a screw thread which is interrupted by multiple grooves and that Niznick suggests that the implant can be pushed into place. This is incorrect. Figs. 3a and 3b of Niznick disclose that the majority of the screw thread is present and the thread is briefly interrupted by grooves running

over the implant in a longitudinal direction. However, as the screw thread is still present, the outer circumference of the screw thread part engages the bone tissue of the implant preparation in the yaw. In other words, the implant preparation hole in the yaw bone requires a slightly larger dimension than the dimension of the implant part. Otherwise, the implant could not be inserted. In fact, the implant preparation hole requires a larger dimension than the dimension of the implant part in order to allow a placement of the Niznick implant in the longitudinal direction by means of pushing. In the event that the dimensions of the implant preparation hole in the yaw bone become slightly smaller than the outer dimensions of the screw thread in Niznick, pushing the implant design in the longitudinal direction is no longer possible due to the fact that the screw thread will be confronted with too much friction.

In the present invention, the majority of the screw thread is removed creating multiple interrupted screw thread parts which serve as retention elements. These retention elements function as small extensions which “dig” into the bone of the implant preparation hole, while being pushed in the longitudinal direction. The retention elements dig into the bone tissue like soft cutting elements and hook in the bone tissue like shark teeth. In fact, the presence of multiple small retention elements which dig into the bone tissue result in a maximum surface contact between the intra-osseous part and the bone surface of the implant preparation hole and proving the stability of the intra-osseous implant design of the present invention.

In the Niznick device, however, the majority of the screw thread is still present and it is the outer circumference of the screw thread which contacts the bone tissue. Therefore, there is no direct contact between the body of the intra-osseous implant part and the bone tissue

of the implant preparation hole as in the present invention. In fact, there will be an open space between the adjacent screw threads, which open spaces will adversely affect the stability of the Niznick implant design in the bone tissue.

From the embodiments shown in Niznick, for example, Fig. 3a, one skilled in the art will realize that the Niznick design can only be pushed in the longitudinal direction into the implant preparation hole if the outer dimensions of the implant screw thread are not much different from the dimensions of the implant preparation hole. Also, from Figs. 2 and 3 of Niznick, it is apparent the screw thread profile is symmetric.

With the present invention, the small retention elements dig into the bone like self-cutting elements while being inserted in the longitudinal direction and the intra-osseous implant part contacts the bone tissue to a maximum extent. The screw thread and thus the retention elements are provided with a profile exhibiting a shallow slope towards the apical side allowing an easy insertion in the longitudinal direction and having a steep slope on the cervical side preventing the removal of the implant in a longitudinal direction of the bone tissue. This feature is disclosed, for example, on page 10, line 29 through page 11, line 2, of the published PCT application (WO2005/002462).

Because Niznick does not disclose each and every element of claim 1, arranged as in the claim, there is no anticipation. Moreover, because Niznick does not suggest the invention of claim 1, any obviousness rejection would also be improper.

Claims 3, 8 and 9 depend from claim 1 and are allowable for the same reasons therefor.

For the above reasons, claims 1, 3, 8 and 9 are allowable and withdrawal of the rejection is requested.

Applicant traverses the rejection of claims 4 and 15 as obvious over Niznick in view of Alvaro U.S. Patent No. 6,099,312.

Claims 4 and 15 depend from claim 1. The deficiencies with respect to Niznick and claim 1 are noted above. Alvaro does not disclose or suggest these deficiencies. As with Niznick, Alvaro discloses a symmetrical profile of a screw thread. Similarly, a significant part of the screw thread of Alvaro is still present, unlike the longitudinal groove present in the claimed invention. As such, insertion in a longitudinal direction is only possible in the event that the dimensions of the implant preparation hole conform with the outer dimensions of the screw thread. Furthermore, Alvaro does not disclose small retention elements which dig into the bone tissue thus maximizing the surface contact between the implant part and the surrounding base tissue.

Therefore, no combination of the references results in the claimed invention so that claims 4 and 15 are allowable.

Applicant traverses the rejection of claim 5 as obvious over Niznick in view of Vogt et al. 2004/0096804.

Claim 5 depends from claim 1 and is believed allowable for the same reasons therefor. Particularly, the deficiencies with respect to Niznick are noted above. Vogt does not disclose these deficiencies. Therefore, claim 5 is believed and withdrawal of the rejection is requested.

Applicant traverses the rejection of claim 6 as obvious over Niznick in view of Misch U.S. Patent No. 5,954,504. Claim 6 depends from claim 1. The deficiencies with respect to Niznick are noted above. Misch does not disclose these deficiencies. Therefore, no combination of the references results in the invention. Therefore, the rejection is improper and claim 6 should be allowed.

Applicant traverses the rejection of claims 10, 11, 16 and 17 as obvious over Niznick in view of Kanomi et al. U.S. Patent No. 5,921,774. These claims all depend from claim 1 and are believed allowable for the same reasons therefor. Particularly, the deficiencies with respect to Niznick are noted above. Kanomi does not disclose or suggest these deficiencies. Therefore, no combination of the references results in the claimed invention.

Claims 10, 11, 16 and 17 are believed allowable and withdrawal of the rejection is requested.

Applicant traverses the rejection of claim 12 as obvious over Niznick.

Claim 12 depends from claim 1. Claim 1 is not obvious over Niznick for the reasons discussed above. Therefore, claim 12 is likewise not obvious. Withdrawal of the rejection is requested.

Applicant traverses the rejection of claim as obvious over Niznick in view of Lonca U.S. Patent No. 4,722,688.

Claim 13 depends from claim 1. The deficiencies with respect to Niznick and claim 1 are noted above. Lonca does not disclose these deficiencies. Therefore, the combination does not result in the claimed invention.

For the above reasons, claim 13 is believed allowable and withdrawal of the rejection is requested.

Applicant traverses the rejection of claim 14 as obvious over Niznick in view of Daftary U.S. Patent No. 5,759,034.

Claim 14 depends from claim 1. The deficiencies with respect to Niznick and claim 1 are noted above. Daftary does not disclose these deficiencies. Therefore, no combination of the references results in the invention.

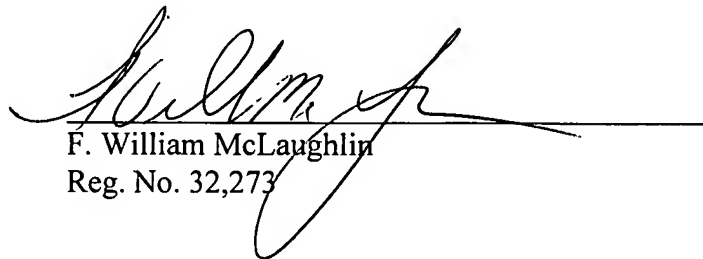
For the above reasons, claim 14 is believed allowable and withdrawal of the rejection is requested.

Summarizing, the principal reference, Niznick, does not disclose or suggest the invention defined by independent claim 1. Therefore, claim 1 and all its dependent claims are allowable and such action is requested.

Reconsideration of the application and allowance and passage to issue are requested.

Respectfully submitted,

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